UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,097	06/14/2001	Anton Wellstein	102728-P01-004	3830

28120 7590 04/27/2007

FISH & NEAVE IP GROUP
ROPES & GRAY LLP
ONE INTERNATIONAL PLACE
BOSTON, MA 02110-2624

EXAMINER	
KOLKER, DANIEL E	
ART UNIT	PAPER NUMBER
1649	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/880,097	WELLSTEIN, ANTON	
	Examiner	Art Unit	
	Daniel Kolker	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *95,96,99-101 and 103-123* is/are pending in the application.

4a) Of the above claim(s) *106-118* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *95,96,99-101,103-105 and 119-121* is/are rejected.

7)☒ Claim(s) *122 and 123* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/18/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The remarks and amendments filed 29 January 2007 have been entered. Claims 1 – 94, 97 – 98, 102, are canceled; claims 119 – 123 are new. Claims 95 – 96, 99 – 101, 103 – 123 are pending.

2. Due to applicant's amendment to claim 95, the first recitation of the abbreviation "PTN", which occurs in claim 99, now does not include the full unabbreviated word "pleiotrophin". To reflect more conventional claim language, applicant may want to amend claim 99 to include the unabbreviated word as well.

Election/Restrictions

3. Claims 106 – 118 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2 February 2004.

4. This application contains claims 106 – 118 drawn to an invention nonelected with traverse in the reply filed 2 February 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

5. Claims 95 – 96, 99 – 101, 103 – 105, and 119 – 123 are under examination

Withdrawn Rejections and Objections

6. The following rejections and objections set forth in the previous office action are withdrawn:

A. The rejection under 35 USC 112, first paragraph for reciting new matter is withdrawn in light of the amendments. The claims no longer are drawn to polypeptides which comprise "a portion but not all of the extracellular domain".

B. The rejection of claim 101 under 35 USC 112, second paragraph is withdrawn in light of the amendments; the claim no longer depends from a canceled claim.

Maintained Rejections

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 95 – 96 and 101 stand rejected under 35 U.S.C. 102(b) as being anticipated by Morris (U.S. Patent 5,770,421, of record).

This rejection stands for the reasons of record. Morris teaches a protein comprising residues 27 – 1030 of ALK protein. See for example Morris, claims 4 and 5. Claim 95, as amended, is drawn to a protein comprising a fragment consisting of residues 368 – 447 of ALK. The prior art protein taught and disclosed by Morris comprises residues 368 – 447. The use of open claim language ("comprising a pleiotrophin-binding fragment") in claim 95 allows for inclusion of additional amino acid residues on either side of the claimed sequence. As the protein by Morris comprises the recited fragment, it anticipates claim 95. Claim 96 is rejected as the protein is inherently soluble as set forth in the previous office action. Claim 101 stands rejected as Morris teaches the protein in transcription and translation buffer (see Example 2 part C from Morris), which is pharmaceutically acceptable absent evidence to the contrary.

Applicant argues that Morris does not disclose the PTN binding domain of ALK and thus does not anticipate the claimed invention. Applicant's arguments have been fully considered but they are not persuasive. Applicant is not claiming a PTN-binding fragment, but rather is claiming any and all proteins comprising this fragment.

8. Claims 95 – 96, 101, and 103 stand rejected under 35 U.S.C. 102(b) as being anticipated by Caughey (1999, of record).

This rejection stands for the reasons of record. Caughey teaches ALK protein, specifically the fragment which consists of residues 280-480 as explained in the previous office action. This comprises residues 368 – 447 and thus anticipates claim 95. The reasons why claims 96, 101, and 103 are anticipated are set forth in the previous office action. The rejection of these claims stands for the reasons of record, the reasons why Caughey anticipates claim 95 are set forth below.

Applicant argues that Caughey teaches murine ALK, whereas applicant is claiming human ALK. The PTO does not have the resources or equipment to distinguish between the two sequences. While it is possible that the mouse and human sequences differ, no evidence has been presented which indicates that they actually are different. Absent evidence to the contrary, it is presumed that the human and mouse sequences are the same over residues 368 – 447, since this comprises the PTN-binding domain and would likely be evolutionarily conserved. Applicant also argues that Caughey does not teach the interaction of PTN and ALK. This is of course true, that is why claims 104 and 105 were not rejected in the previous office action. However, as Caughey teaches a protein which comprises the fragment that consists of residues 368 – 447 of ALK, the reference anticipates claims 95 – 96, 101, and 103.

Rejections and Objections Necessitated by Amendment
Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 95 – 96, 99 – 101, 103 – 105 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are not limited to "isolated" proteins, but are sufficiently broad to encompass naturally occurring proteins residing in a human body; such naturally-occrring products do not require the hand of man and are unpatentable. Amendment of claim 95 to "An isolated polypeptide" is recommended. Note claims 119 – 123 require modification of the protein and thus are not included in this rejection.

This rejection is necessitated by applicant's amendment. Claim 95 previously was limited to fragments of the extracellular domain but not the entire domain; such fragments are not naturally occurring and thus require the hand of man. Now the claims encompass full-length proteins but are not limited to isolated proteins. Thus the amendment necessitated this rejection.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 119 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 119 recites the limitation "the peptide" in line 1. There is insufficient antecedent basis for this limitation in the claim. Furthermore it is unclear whether the term refers to fragment of ALK (residues 368-447) or to the polypeptide comprising the fragment, as both are peptides.

Claim Rejections - 35 USC § 102

11. Claims 95 – 96, 99 – 101, and 103 – 104 are rejected under 35 U.S.C. 102(b) as being anticipated by Pulford (1997. Blood 89:1394-1404).

Pulford teaches human ALK protein, both isolated (see for example p. 1396, "Expression of ALK in Transfected Cells") and in human tissues (p. 1395 – 1396, "Tissue Samples") and both within the scope of claim 95. The protein is inherently soluble thus the prior art anticipates claim 96; note that claim 96 requires no further structural elements beyond those recited in claim 95. The specification discloses (p. 8 lines 1 – 12) that pleiotrophin is expressed in human cancer cells; as the reference by Pulford teaches human cancer cells (see for example p. 1399, Table 3) which express ALK protein, it is reasonable that they also express PTN, which binds to ALK. Therefore claim 99 is anticipated. Claim 100 is anticipated as the reference teaches recombinant ALK protein immobilized on a PVDF membrane (see Figure 2, lanes 7 – 8). Claim 101 is anticipated as the reference teaches ALK protein in human blood, which comprises the pharmaceutically acceptable carriers water and phosphate and is at a pharmaceutically acceptable pH. Claim 103 is anticipated as it does not require any additional elements beyond the composition of claim 101 and there is no explicit requirement that any particular amount be present, only that the amount be "therapeutically effective" for some purpose. Claim 104 is rejected as the blood samples from cancer patients would be expected to have the PTN ligand bound to ALK, since the specification states that PTN is present in serum from cancer patients and binds to ALK.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 95 – 96, 99 – 101, 103 – 104 and 119 – 121 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pulford (1997. Blood 89:1394-1404) in view of Lo et al. (1998. Protein Engineering 11:495-500).

The reasons why claims 95 – 96, 99 – 101, and 103 – 104 are anticipated by Pulford are set forth in the previous rejection. Briefly Pulford teaches the ALK protein, which comprises residues 368 – 447, as well as compositions comprising the protein such as the cell culture medium described on p. 1396 ("Expression of ALK in Transfected Cells"), which is on point to claim 120 – 121 (note claim 121 requires no particular amount, only that the amount present be effective for some therapeutic function). However Pulford does not teach fusion proteins comprising the Fc domain as recited in claim 119.

Lo et al. teach fusing a nucleic acid sequence encoding essentially any mammalian protein can be fused to immunoglobulin Fc region (p. 495, paragraph spanning the two columns). Lo et al. also teach this is advantageous as it allows rapid production and purification of gene products, which is necessary to identify and understand their functions (p. 495, second paragraph). Furthermore Lo et al. teach that their method is particularly useful as it allows for increased quantities of the proteins, with the advantage that they are secreted in the culture medium (p. 499, Discussion, first paragraph), allowing easy recovery. It would have been obvious to one of ordinary skill in the art to fuse the isolated human protein from Pulford to the Fc immunoglobulin domain, with a reasonable expectation of success. The motivation would be to rapidly produce the protein at high purity, as taught by Lo et al.

Conclusion

13. No claim is allowed.

14. Claims 122 – 123 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Kolker whose telephone number is (571) 272-3181. The examiner can normally be reached on Mon - Fri 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on (571) 272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DK

Daniel E. Kolker, Ph.D.
April 25, 2007

ROBERT C. HAYES, PH.D.
PRIMARY EXAMINER